

REMARKS

Claims 1-37 were pending at the time of the Action. Claims 1-10, 12-30 and 32-37 stand rejected under 35 U.S.C. Section 102(b) as being anticipated by U.S. Patent No. 6,294,063 to Becker et al. ("Becker"). Claims 11 and 31 stand rejected under 35 U.S.C. Section 103(a) as being unpatentable over Becker in view of U.S. Patent No. 6,149,789 to Benecke et al. ("Benecke").

Claims 1 and 18 have been amended to incorporate the recitations of Claims 3 and 20, respectively. Claims 3 and 20 have been canceled. Applicant hereby requests further consideration of the application in view of the amendments above and the comments that follow.

The § 102/103 Rejections

Independent Claim 1 recites a device for the manipulation of a suspended particle in an electric field gradient including:

a plurality of electrically isolated electrodes on a surface; and
a liquid composition on said plurality of electrodes, said liquid composition covering said surface continuously between adjacent ones of said plurality of electrodes, said liquid composition having an exposed liquid surface for suspending a particle;

said plurality of electrodes configured to provide an electric field gradient for transporting the particle suspended in said liquid composition;
and

a particle suspended in said liquid composition, wherein said particle does not directly contact said plurality of electrodes.

Independent Claim 18 recites a method for the manipulation of a suspended particle in an electric field gradient including:

configuring a plurality of electrodes on a surface to provide an electric field gradient for transporting a particle;

applying a liquid composition on the plurality of electrodes, the liquid composition having an exposed liquid surface for suspending a particle;

suspending the particle in the liquid composition;
applying a voltage between selected ones of the plurality of

electrodes to provide the electric field gradient, the electric field gradient having a pattern that defines a pathway for transporting the particle; and transporting the particle along the pathway defined by the electric field gradient, wherein the particle does not directly contact the plurality of electrodes.

Applicant submits that Becker does not disclose or render obvious an exposed liquid surface for suspending a particle and that the particle does not directly contact the plurality of electrodes as recited in independent Claims 1 and 18. As shown, for example, in Figure 1A of the current application, the microdroplet 12 is suspended in a liquid 16 (for example, fluorinated oil) that has an exposed surface 16A. As noted on page 4, line 23, an “exposed” surface means that the surface 16A is in open contact with the surrounding air. According to embodiments of the current invention and as illustrated in Figure 1A, the droplet 12 is not in contact with any of the solid surfaces of the device 10, such as the solid surfaces of the electrodes 14A-F or the substrate 17. In this configuration, surface fouling, evaporation, adsorption of the droplet 12 (or components carried by the droplet 12), and chip contamination may be reduced. Figure 1A of the current application is reproduced below.

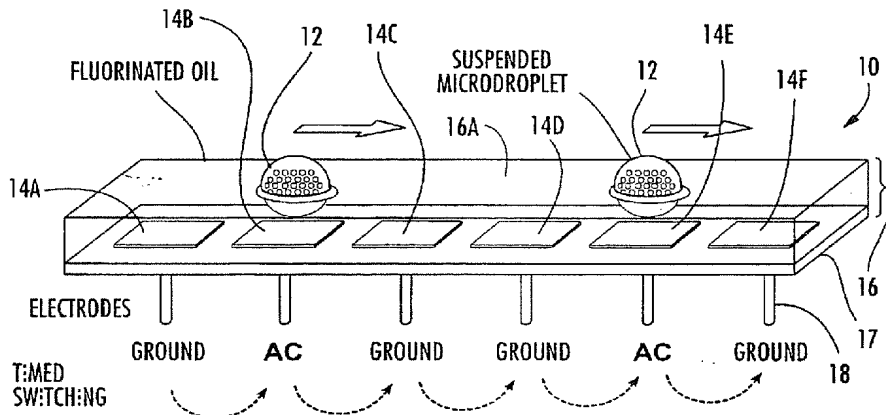
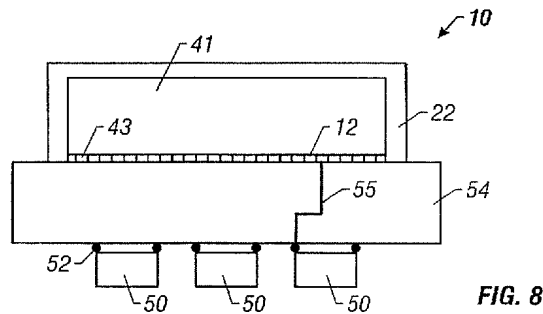


FIG. 1A

In contrast, as shown in Figure 8 (reproduced below), Becker discusses a device 10 in which the electrodes 43 are positioned on a reaction surface 12 in a chamber 41 (*see* Becker, col. 7, lines 37-41 and col. 18, lines 26-33) and Becker states that the reaction surface 12 is configured to provide an interaction site for the packets. *See* Becker, col. 3, lines 20-21 and Claim 1. Becker further discusses coatings on the reaction surface 12 that "may prevent an

aqueous packet from sticking, from spreading, or from becoming unstable upon contact with reaction surface 12." See Becker, col. 12, lines 4-6 (emphasis added).



Accordingly, Becker does not disclose an exposed liquid surface and that the particle does not directly contact the electrodes as shown, for example, in Figure 1A of the current application. In addition, Becker proposes that the reaction surface 12 provides an interaction site where the packets apparently contact the electrode array 43, and as such, Becker teaches away from configurations in which the particle does not directly contact the electrodes as recited in independent Claims 1 and 18.

Benecke is cited in the Action with respect to Claims 11 and 31 as allegedly disclosing ring-shaped electrodes. Accordingly, Applicant submits that Benecke does not remedy the deficiencies of Becker.

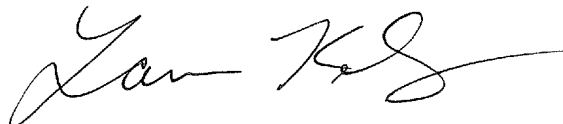
For at least these reasons, Applicant submits that Becker and Benecke do not disclose or render obvious at least an exposed liquid surface for suspending a particle and that the particle does not directly contact the plurality of electrodes as recited in independent Claims 1 and 18. Applicant respectfully requests that the rejections of Claims 1 and 18 and Claims 2, 4-17, 19 and 21-37 depending therefrom be withdrawn.

CONCLUSION

Accordingly, Applicant submits that the present application is in condition for allowance and the same is earnestly solicited. Should the Examiner have any matters outstanding of resolution, she is encouraged to telephone the undersigned at 919-854-1400 for expeditious handling.

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Respectfully submitted,

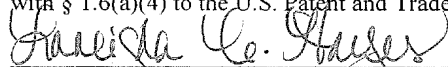


Laura M. Kelley
Registration No.: 48,441

USPTO Customer No. 20792
Myers Bigel Sibley & Sajovec
Post Office Box 37428
Raleigh, North Carolina 27627
Telephone: 919/854-1400
Facsimile: 919/854-1401

CERTIFICATION OF TRANSMISSION

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Lancisha C. Hayes

Date of Signature: July 6, 2007